REMARKS

Claims 1 and 7 have been amended. Claims 1-9 are now pending in this application. Support for the amendments is found in the existing claims and the specification as discussed below. Accordingly, the amendments do not constitute the addition of new matter. Applicant respectfully requests the entry of the amendments and reconsideration of the application in view of the amendments and the following remarks.

Rejection under 35 U.S.C. § 112, second paragraph

Claims 1-9 are rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 7 have been amended to "complementary to a nucleotide sequence comprising the nucleotide at nucleotide number 247 and sequence 5' to the nucleotide in the nucleotide sequence of SEQ ID NO: 1" to clarify that the nucleotide includes nucleotide number 247 and nucleotides 5' to nucleotide number 247. As the specified nucleotide at position number 247 is guanine, the nucleotide at the 5' end of the claimed probe is cytosine and the cytosine at the 5' end is labeled with a fluorescent dye.

In view of Applicant's amendment, reconsideration and withdrawal of the above ground of rejection is respectfully requested.

Rejection under 35 U.S.C. § 103(a)

Claims 1-9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Lee, et al. (WO 02/072875 A1) in view of Crockett, et al. (2001).

The nucleic acid probe of the present invention has a nucleotide sequence complementary to a nucleotide sequence "comprising the nucleotide at nucleotide number 247 and sequence 5' to the nucleotide" in the nucleotide sequence of SEQ ID NO: 1 and has a length of 13 to 30 nucleotides.

Lee, et al. disclose the nucleotide sequence with the S20G mutation which covers the sequence complementary to the nucleic acid probe of the present invention (Figure 5). However, Lee, et al. do not specify the nucleotide at nucleotide number 247 and do not recognize that nucleotide number 247 should correspond to the 5' end of any probe.

Crockett, et al. disclose a method of using a single 5'-fluorescein probe in real-time PCR and describe that a nucleotide at the end of the probe is labeled with a fluorescein. However, Crockett, et al. do not teach or suggest the probe claimed by Applicants. Although Crockett, et al. teach that a decrease in fluorescence of 5'-labeled probes was observed with a G at the first position of the 3' dangling end (see Abstract), when Applicant designed a quenching probe with at least one GC pair in the end portion, no quenching was detected (see present specification, pages 2-3, bridging paragraph).

Among the many cytosines that can be labeled, the cytosine complementary to guanine at nucleotide number 247 of SEQ ID NO: 1 is critical. When the probes of the present invention, having a 5' cytosine and complementary to guanine at nucleotide number 247 were used (Figure 2) changes in fluorescence intensity that could be analyzed in Tm analysis were obtained. However, as shown in Figure 1, when probes having a cytosine end but complementary to guanine at positions other than position 247 were prepared, changes were not observed (as discussed in the present specification at page 12, lines 7-10 from bottom). The importance of the guanine at position 247 as the 5' end of the probe could not have been predicted based upon the cited references. There was no reasonable expectation of success that merely combining the teachings of the two cited references would lead to the claimed invention. Accordingly, the two cited references taken as a whole do not teach or suggest the invention claimed.

Furthermore, it was not expected that the IAPP S20G mutation could be detected based upon the results of the Tm analysis (Figures 3 and 4). Quantification of the mutant type DNA and determination of the ratio of wild type DNA and mutant type DNA were (Figure 5) were also unexpected.

In view of Applicant's amendments and arguments, reconsideration and withdrawal of the above ground of rejection is respectfully requested.

CONCLUSION

In view of Applicants' amendments to the claims and the foregoing Remarks, it is respectfully submitted that the present application is in condition for allowance. Should the Examiner have any remaining concerns which might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: March 8, 2007

By: Che S. Chereskin

Che Swyden Chereskin, Ph.D.
Registration No. 41,466
Agent of Record
Customer No. 20,995
(949) 721-6385

3509475
030707